

Remarks

Applicant has discovered that when superabsorbent polymer forms in situ in a high loft nonwoven web from an aqueous superabsorbent polymer precursor composition that is present as a saturant throughout the web, i.e., the web is impregnated with superabsorbent polymer precursor composition, and the composition is subsequently dried, the fibrous structure of the high loft nonwoven web compresses (due to the force of the drying superabsorbent polymer on the fibers) to form a much thinner, denser composite. See Declaration of Fouad D. Mchawej attached at Tab 1. The superabsorbent polymer forms as an essentially continuous phase throughout the web matrix including along the length of the fibers and in the interstices of the fibers with no visible air gaps when viewed by the naked eye. *Id.* Due to the presence of the nonwoven web matrix, the superabsorbent polymer technically is not a true continuous phase. *Id.*

When water is added to the dried composite, the superabsorbent polymer absorbs the water and begins to swell, and the composite expands to accommodate the swelling superabsorbent polymer. *Id.* The composite expands due to the resilient nature of the fibers of the nonwoven web, the original high loft structure of the nonwoven web, and the change in the nature of the superabsorbent polymer. *Id.* As the superabsorbent polymer absorbs water, the superabsorbent polymer turns to a gel, and the force exerted by the gelling superabsorbent polymer on the fibers of the nonwoven web decreases. *Id.* In response, the resilient fibers of the nonwoven web spring back to a more relaxed state in an attempt to achieve their original high loft structure. *Id.* As the fibers move to their more relaxed state and the nonwoven web expands, fluid is better able to penetrate the depth of the composite and to contact additional superabsorbent polymer located therein. *Id.*

Claim 44 has been amended. Claims 11, 45 and 47 have been cancelled. Claim 44 has been amended to incorporate the language of previously pending dependent claim 11. No new matter has been added.

Claims 2-10, 18-20, 26-30, 32-34, 37, 44 and 46 stand rejected under 35 U.S.C. § 102(b) over Chmielewski U.S. 6,068,620 (the '620 patent)

The '620 patent discloses a disposable absorbent article that includes an absorbent core that includes a laminate of three layers in which the central fibrous layer includes superabsorbent polymer.

Applicant submits that the amendment to claim 44, which now recites that the nonwoven web has a density no greater than 0.01 g/cm^3 , renders moot the rejection of claims 2-10, 18-20, 26-30, 32-34, 37, and 44 under 35 U.S.C. § 102(b) over Chmielewski U.S. 6,068,620 (the '620 patent) and requests that it be withdrawn.

Claim 46 is directed to an absorbent article having a core that includes a composite that includes superabsorbent polymer, and a nonwoven web comprising fibers and having loft and a density of no greater than 0.025 g/cm^3 , the nonwoven web being impregnated with the superabsorbent polymer, the superabsorbent polymer having been formed in situ in the nonwoven web by impregnating the nonwoven web with an aqueous superabsorbent polymer precursor composition and drying the aqueous superabsorbent polymer precursor composition to form a superabsorbent polymer throughout the three dimensional matrix of said nonwoven web including along the fibers of the nonwoven web and in the interstices of the nonwoven web, the composite including from 10 % by weight to about 90 % by weight superabsorbent polymer. The '620 patent does not teach a nonwoven web having a density of no greater than 0.025 g/cm^3 . The '620 patent also does not teach a nonwoven web having a density of no greater than 0.025 g/cm^3 that includes superabsorbent polymer. The '620 patent does not teach that a nonwoven web that includes superabsorbent polymer should have any particular density. The '620 patent discusses density with respect to the overall density of the laminate construction disclosed therein (see, e.g., col. 14, lines 16-20). However, the '620 patent does not teach the fibers of the laminate were in the form of a nonwoven web or a nonwoven web having a density no greater than 0.025 g/cm^3 . There is no evidence of record establishing anything to the contrary. Accordingly, Applicant submits that a *prima facie* case of anticipation of claim 46 has not been made and request that the rejection of claim 46 under 35 U.S.C. § 102(b) over the '620 patent be withdrawn. There being no further rejection of claim 46, Applicant submits that claim 46 it is allowable and respectfully requests an indication as to the same.

Original claim 11, now claim 44, and claims 12-17, 21-25, and 31 stand rejected under 35 U.S.C. § 103 over the '620 patent.

The discussion regarding the '620 patent set forth above is incorporated herein.

Claim 44, which has been amended to include the language of claim 11, requires the high loft nonwoven web to have a density of no greater than 0.01 g/cm^3 . The '620 patent does not teach or suggest that a nonwoven web that includes superabsorbent polymer should have any particular density—let alone a density of no greater 0.01 g/cm^3 . The '620 patent also does not teach or suggest that the density of a nonwoven web that includes superabsorbent polymer is important.

The January 10th Office action acknowledges that the '620 patent does not teach a nonwoven web having a density less than 0.01 g/cm^3 , but takes the position that Applicant must show that the density is a critical value or gives an unexpected result. According to the January 10th Office action, "[D]iscovering the optimum or workable ranges involves only routine skill in the art" (January 10th Office action, page 7). It is well established by legal precedent that if a variable is not known to be a result effective variable, then it cannot be obvious to optimize that variable (see, e.g., *In re Antonie*, 559 F.2d 618, 620 (CCPA 1977)). Applicant discovered that high loft, i.e., low density, nonwoven webs with relatively less superabsorbent polymer, can absorb more water than more dense nonwoven webs with relatively more superabsorbent polymer when the superabsorbent polymer is formed in situ. The '620 patent does not teach or suggest this phenomenon nor does this phenomenon inherently occur in the '620 composite. The composite of the '620 patent is not obtained by adding an aqueous superabsorbent polymer precursor composition to an existing nonwoven web. Rather, the composite of the '620 patent is obtained by simultaneously mixing fibers and superabsorbent polymer and then further processing the mixture to form a composite. Therefore, the '620 patent does not teach a composite that starts from impregnating a nonwoven web with superabsorbent polymer precursor. Accordingly, the '620 patent does not teach or suggest that the density of a nonwoven web starting material is important in optimizing the absorbency of a composite made therefrom or that density of a nonwoven web is a variable to be optimize. The '620 patent also does not recognize the benefit of employing a high loft, i.e., low density, nonwoven web and does not recognize the impact of forming

superabsorbent polymer in situ in a high loft nonwoven web. Forming the superabsorbent polymer in situ in a high loft nonwoven web causes the structure of the web to contract and compress. When subsequently contacted with water, the superabsorbent polymer absorbs water and begins to gel. The force exerted by the superabsorbent polymer on the fibrous structure of the nonwoven web decreases and allows the resilient fibers to move toward their original high loft structure. As the web expands, more superabsorbent polymer is exposed for contact with additional water, additional passageways open up or are made easier to navigate by water molecules, and water is allowed to penetrate further into the depth of the composite. Nothing in the '620 patent teaches or suggests this phenomenon. Therefore the skilled artisan would have no reason 1) to select a nonwoven web --let alone a high loft nonwoven web-- as a starting material for the composite of the '620 patent or 2) to optimize the density of the nonwoven web, and further would have no clue that the density of the nonwoven web would impact the absorbency of the resulting composite. Applicant submits, therefore, that the rejection of claim 44 under 35 U.S.C. § 103 over the '620 patent has been overcome and requests that it be withdrawn.

Claims 12-17, 21-25 and 31 depend from claim 44 and are distinguishable under 35 U.S.C. § 103 over the '620 patent for at least the same reasons set forth above in distinguishing claim 44.

Claim 35 stands rejected under 35 U.S.C. § 103 over the '620 patent in view of Abuto et al. (U.S. 5,788,684).

Applicant submits that the amendment to claim 44, from which claim 35 indirectly depends, renders moot the rejection of claim 35 under 35 U.S.C. § 103 over the '620 patent in view of Abuto et al. and requests that it be withdrawn.

Claim 48 stands rejected under 35 U.S.C. § 103 over the '620 patent in view of Chmielewski et al. U.S. 2003/0105441 (the '441 publication).

Prior to November 30, 2001, the filing date of the '441 publication, a high loft nonwoven web was saturated with a superabsorbent polymer precursor composition at Applicant's direction (see, Declaration of Fouad D. Mehawej under 37 CFR 1.131, which is attached hereto at Tab 2). Therefore, the '441 publication is not available as a prior art reference against the above-captioned application. Accordingly, Applicant submits that


the rejection of claim 48 under 35 U.S.C. § 103 over the '620 patent in view of the '441 publication has been overcome and requests that it be withdrawn.

There being no further rejections of record, Applicant submits that the application is in condition for allowance and respectfully requests action in accordance therewith. Applicant invites the Examiner to telephone the undersigned at the number set forth below should a teleconference interview facilitate prosecution of the application.

The Commissioner is hereby authorized to charge any additional fees that may be required and to credit any overpayment to Deposit Account No. 06-2241.

Respectfully submitted,

Date: April 7, 2006


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